

WHAT IS CLAIMED IS:

1. A solid-state imaging device, comprising: an imaging region in which a plurality of pixels are arranged; and a signal line through which a pixel signal of the imaging region is read out,
 - 5 wherein an adding circuit for adding pixel signals obtained from two or more of the pixels is provided so that an output signal of the adding circuit is read out to the signal line, and
 - 10 wherein on the basis of a predetermined reference quantity of light incident onto the imaging region, a gain of the adding circuit in a condition in which a quantity of the incident light is above the reference quantity is controlled to be smaller than a gain of the adding circuit in a condition in which a quantity of the incident light is below the reference quantity.
- 15 2. A solid-state imaging device, comprising: an imaging region in which a plurality of pixels are arranged; and a signal line through which a signal of the imaging region is read out,
 - 20 wherein an adding circuit for adding pixel signals obtained from two or more of the pixels is provided so that an output signal of the adding circuit is read out to the signal line, and
 - 25 wherein, within at least a partial range of a quantity of incident light onto the imaging region, a gain of the adding circuit is controlled to decrease with an increase of the quantity of the incident light.
- 30 3. The solid-state imaging device according to claim 1 or 2, wherein the adding circuit is arranged between the imaging region and the signal line.
4. The solid-state imaging device according to claim 1 or 2, wherein a plurality of the adding circuits are arranged between the two or more pixels included in the respective sets of pixels.
- 35 5. The solid-state imaging device according to claim 1 or 2, wherein a plurality of the adding circuits are provided, and gains for at least two of the plurality of adding circuits are controlled individually.
6. The solid-state imaging device according to claim 3, wherein a

photometer portion is provided between the imaging region and the signal line so as to detect a quantity of the incident light onto the imaging region, and a gain of the adding circuit is controlled in accordance with a detection output from the photometer portion.

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7. The solid-state imaging device according to claim 4,
wherein a photometer portion is arranged between the two or more pixels included in each of the sets of pixels, so as to detect an quantity of incident light onto the two or more pixels, and

10 wherein a gain of the adding circuit is controlled in accordance with a detection output from the photometer portion.

15 8. The solid-state imaging device according to claim 1 or 2, wherein the adding circuit is provided with an averaging portion for averaging pixel signals obtained from two or more of the pixels, and when the quantity of incident light is larger than a predetermined higher reference quantity that is larger than the reference quantity, an output of the averaging portion is read out to the signal line in place of the added signal.

20 9. The solid-state imaging device according to claim 1 or 2, wherein when signals of N pieces of pixels are added, a gain of the adding circuit is controlled so that an output value from the adding circuit is not more than a value obtained from the following formula:

$$(value\ obtained\ by\ adding\ the\ N\ pieces\ of\ signals)\ / N.$$

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10. The solid-state imaging device according to claim 1 or 2, wherein when signals of N pieces of pixels are added, a gain of the adding circuit is controlled so that an output value from the adding circuit is less than a value obtained by adding the N pieces of signals and more than a value obtained from the following formula:

$$(value\ obtained\ by\ adding\ the\ N\ pieces\ of\ signals)\ / N.$$

30 11. A camera equipped with the solid-state imaging device according to claim 1 or 2.